

IN THE CLAIMS

The following listing of claims replaces all previous listings and versions of claims in this application.

1. (Currently Amended) An apparatus including a video interface for a remote display, comprising:

a video processing circuit configured to output a baseband video signal, said video signal having a data structure comprising a repetitive sequence of frame times, each said frame time containing substantially equal consecutive field times for each of three color fields;

a transceiver module comprising a cluster of infrared light-emitting diodes coupled to said video processing circuit for transmitting said baseband video signal, and wherein the cluster includes a first group and a second group of light-emitting diodes that are arranged in an electronic dipole configuration such that the respective electromagnetic fields from the first and second groups cancel each other;

a remote receiver configured to receive said baseband video signal; and

a remote electronic circuit interconnected to said receiver and to a video display device, said remote electronic circuit configured to apply said baseband video signal to control and drive said video display device.

2-5. (Canceled)

6. (Previously Presented) The apparatus of Claim 1 wherein each diod in said cluster emits an identical optical signal.

7-11 (Canceled)

12. (Currently Amended) The apparatus of Claim ~~11~~ 1 wherein said cluster further comprises at least a third group and a fourth group of said light-emitting diodes, said third and fourth groups being arranged in an electronic dipole configuration such that the respective electromagnetic fields from said third and fourth groups cancel each other.

13. (Original) The apparatus of Claim 1 wherein said cluster of light emitting diodes is interconnected with said video processing circuit through electrical cables.

14. (Original) The apparatus of Claim 1 wherein said cluster of light emitting diodes is interconnected with said video processing circuit through a coaxial cable.

15. (Previously Presented) The apparatus of Claim 1 wherein said receiver comprises a collecting lens assembly comprising:

a photodetector;

an inner light cone optically coupled to said photodetector, said inner light cone having diffusely reflecting outer walls; and

a wide-angle collecting lens coupled coaxially to said inner light cone.

16. (Original) The apparatus of Claim 15 wherein said collecting lens assembly further comprises an outer conic cavity disposed coaxially around said wide angle collecting lens and inner light cone, said outer conic cavity having polished reflective inner walls.

17. (Original) The apparatus of Claim 15 wherein said wide angle collecting lens is aspheric.

18-19. (Canceled)

20. (Original) The apparatus of Claim 15 wherein said collecting lens assembly comprises a prismatic dispersion plate for widening a collecting angle of said assembly.

21. (Original) The apparatus of Claim 20 wherein said prismatic dispersion plate overlies said outer conic cavity.

22. (Original) The apparatus of Claim 15 wherein said collecting lens assembly comprises an asymmetrical prismatic pattern for widening a collecting angle of said assembly asymmetrically.

23. (Original) The apparatus of Claim 15 wherein said wide angle collecting lens and said inner light cone are an integrated monolithic structure.

24. (Original) The apparatus of Claim 1 further comprising a headset to be worn by a user, said headset incorporating said receiver and said video display device.

25-27. (Canceled)

28. (Previously Presented) The apparatus of Claim 1 wherein said remote electronic circuit is configured to illuminate said video display device sequentially with light from colored light emitting diodes in synchronism with bursts of pixel luminance data, such that illumination occurs during a portion of each said field time not containing said burst.

29. (Original) The apparatus of Claim 28 further configured to operate two separate video display devices alternately, such that data bursts of a first video signal for a first display device alternate with corresponding data bursts of a second video signal for a second display device, and wherein said first and second video signals are derived from a single time-duplexed video data stream.

30. (Original) The apparatus of Claim 1 wherein said field time is in a range of approximately 4 msec to approximately 6 msec.

31. (Original) The apparatus of Claim 1 further configured to provide a video bandwidth of the order of or greater than 100 MHz.

32. (Previously Presented) The apparatus of Claim 1 wherein said video processing circuit is configured to convert a frame rate in an input video signal into a higher frame rate in said baseband video signal by repeated color fields.

33. (Previously Presented) The apparatus of Claim 1 wherein said baseband video signal incorporates an embedded audio signal.

34. (Previously Presented) The apparatus of Claim 1 further comprising a return audio link configured to propagate a return audio signal from the proximity of said remote receiver to the proximity of said video processing circuit.

35. (Currently Amended) An apparatus including a video interface for a remote display, comprising:

a video processing circuit configured to output a baseband video signal;

a remote receiver, said receiver configured to receive said baseband video signal;

a remote electronic circuit interconnected between said receiver and a video display device, said remote electronic circuit configured to apply said baseband video signal to control and drive said video display device; and

a transceiver module comprising a cluster of infrared light-emitting diodes located proximate to said receiver, wherein the cluster includes a first group and a second group of light-emitting diodes, the first and second groups being arranged in an electronic dipole configuration such that the respective electromagnetic fields from the first and second groups cancel each other, said transceiver module being configured to output said baseband video signal to said receiver at least in part through a free atmospheric path.

36. (Canceled)

37. (Previously Presented) The apparatus of Claim 35 wherein each diode in said cluster emits an identical optical signal.

38-40. (Canceled)

41. (Original) The apparatus of Claim 35 wherein each light-emitting diode in the cluster emits an identical optical signal.

42. (Canceled)

43. (Currently Amended) The apparatus of Claim 42 35 wherein said cluster further comprises at least a third group and a fourth group of said light-emitting diodes, said third and fourth groups being arranged in an electronic dipole configuration such that the respective electromagnetic fields from said third and fourth groups cancel each other.

44. (Original) The apparatus of Claim 35 wherein said cluster of light emitting diodes is interconnected with said video processing circuit through electrical cables.

45. (Original) The apparatus of Claim 35 wherein said cluster of light-emitting diodes is interconnected with said video processing circuit through a coaxial cable.

46. (Previously Presented) The apparatus of claim 35, wherein said receiver further comprises a collecting lens assembly incorporating:

a photodetector;

an inner light cone optically coupled to said photodetector, said inner light cone having diffusely reflecting outer walls; and

a wide-angle collecting lens coupled coaxially to said inner light cone.

47. (Original) The apparatus of Claim 46 wherein said collecting lens assembly further comprises an outer conic cavity disposed coaxially around said wide angle collecting lens and inner light cone, said outer conic cavity having polished reflective inner walls.

48. (Original) The apparatus of Claim 47 wherein said wide angle collecting lens is aspheric.

49. (Original) The apparatus of Claim 46 wherein said collecting lens assembly comprises a prismatic dispersion plate for widening a collecting angle of said assembly.

50. (Original) The apparatus of Claim 49 wherein said prismatic dispersion plate overlies said outer conic cavity.

51. (Original) The apparatus of Claim 46 wherein said collecting lens assembly comprises an asymmetrical prismatic pattern for widening a collecting angle of said assembly asymmetrically.

52. (Original) The apparatus of Claim 35 further comprising a headset to be worn by a user, said headset including said receiver and said video display device.

53. (Previously Presented) The apparatus of Claim 35 wherein said baseband video signal incorporates an embedded audio signal.

54. (Previously Presented) The apparatus of Claim 35 further comprising a return audio link configured to propagate an audio signal from the proximity of said remote receiver to the proximity of said video processing circuit.

55. (Original) An apparatus including a collecting lens assembly comprising:
an inner light cone having diffusely reflecting outer walls;
a wide-angle collecting lens coupled coaxially to said inner light cone;
an outer conic cavity disposed coaxially around said wide-angle collecting lens, said outer conic cavity having polished reflective inner walls; and
a prismatic dispersion plate for widening a collecting angle of said assembly.

56. (Original) The apparatus of Claim 55 further comprising a headset configured to be worn by a user, said headset including said collecting lens assembly and a video display device.

57. (Original) The apparatus of Claim 55 wherein said wide-angle collecting lens is made of an optically transmitting polymeric material.

58. (Canceled)

59. (Original) The apparatus of Claim 55 wherein said wide angle collecting lens and said inner light cone are an integrated monolithic structure.

60-79. (Canceled)

80. (Currently Amended) A method of operating a remote video display device, comprising:

generating a baseband video signal;

transmitting said baseband video signal ~~using a plurality of light-emitting diodes~~ through a free atmospheric path to a remote receiver coupled to the remote video display device using a cluster of light-emitting diodes, and wherein the cluster includes a first group and a second group of light-emitting diodes that are arranged in an electronic dipole configuration such that the respective electromagnetic fields from the first and second groups cancel each other; and

applying said baseband video signal to control and drive said remote video display device.

81-84. (Canceled)

85. (Previously Presented) The method of claim 80 wherein said receiver comprises a collecting lens assembly incorporating:

a photodetector;

an inner light cone optically coupled to said photodetector, said inner light cone having diffusely reflecting outer walls; and

a wide-angle collecting lens coupled coaxially to said inner light cone.

86. (Original) The method of claim 85 wherein said collecting lens assembly further comprises an outer conic cavity disposed coaxially around said wide angle collecting lens and inner light cone, said outer conic cavity having polished reflective inner walls.

87. (Original) The method of claim 85 wherein said wide angle collecting lens is aspheric.

88. (Original) The method of Claim 85 wherein said collecting lens assembly comprises a prismatic dispersion plate for widening a collecting angle of said assembly.

89. (Original) The method of Claim 85 wherein said prismatic dispersion plate overlies said outer conic cavity.

90. (Original) The method of Claim 85 wherein said collecting lens assembly comprises an asymmetrical prismatic pattern for widening a collecting angle of said assembly asymmetrically.

91. (Original) The method of Claim 80 wherein said receiver and said video display device are incorporated in a headset worn by a user.

92. (Previously Presented) The method of Claim 80 further comprising embedding an audio signal in said baseband video signal.

93. (Previously Presented) The method of Claim 80 further comprising transmitting a return audio signal from the proximity of said remote receiver.

94. (Previously Presented) The apparatus of claim 35, wherein the baseband video signal is a serial data stream comprising a repeating sequence of three color fields.

95. (Previously Presented) The apparatus of claim 94, wherein at least some of the same color fields are repeated in said serial data stream.

96. (Previously Presented) The apparatus of claim 55, wherein the prismatic dispersion plate comprises an asymmetrical prismatic pattern.

97. (Previously Presented) An apparatus including a video interface for a remote video display, comprising:

a video processing circuit configured to output a baseband video signal having a bandwidth of at least about 85 MHz, said video signal comprising a serial data stream having a repetitive sequence of three color fields, wherein at least some of the same color fields are repeated in the serial data stream;

a remote receiver adapted to receive the baseband video signal; and

a remote electronic circuit coupled to the remote receiver and to the remote display, said remote electronic circuit configured to apply said baseband video signal to control and drive said remote video display device.

98. (Previously Presented) The apparatus of claim 97, further comprising a plurality of spaced-apart infrared diodes coupled to receive the baseband video signal and to transmit the baseband video signal to the remote receiver over a free atmospheric path.

99. (Previously Presented) The apparatus of claim 98, wherein the video processing circuit is coupled to an audio receiver for receiving an audio signal from the remote electronic circuit.

100. (Previously Presented) The apparatus of claim 97, further comprising at least one infrared diode coupled to receive the baseband video signal, and to transmit the baseband video signal to the remote receiver over a fiber optic line.

101. (Previously Presented) The apparatus of claim 97, further comprising a transmitter circuit coupled to receive the baseband video signal, and to transmit the baseband video signal to the remote receiver over a coaxial cable.

102. (Previously Presented) The apparatus of claim 97, wherein the video processing circuit is coupled to receive an input from a video imaging system.

103. (Previously Presented) The apparatus of claim 97, wherein said remote receiver comprises:

- a photodetector;
- an inner light cone optically coupled to said photodetector, said inner light cone having diffusely reflecting outer walls;
- a wide-angle collecting lens coupled coaxially to said inner light cone;
- an outer conic cavity disposed coaxially around said wide-angle collecting lens, said outer conic cavity having polished reflective inner walls; and
- a prismatic dispersion plate coupled to the outer conic cavity.

104. (Previously Presented) The apparatus of claim 97, wherein the remote receiver comprises a photodetector that receives the baseband video signal.

105. (Previously Presented) The apparatus of claim 99, wherein the remote receiver comprises a photodetector that receives the baseband video signal.

106. (Previously Presented) The apparatus of claim 97, wherein the remote receiver, remote electronic circuit, and the remote video display are part of a remote assembly coupled to a surgical eyewear frame including a pair of eyeglasses, wherein the remote assembly is coupled to the frame above the eyeglasses, and the remote video display is in front of the eyeglasses.

107. (Previously Presented) The apparatus of claim 106, further comprising a plurality of spaced-apart infrared diodes coupled to receive the baseband video signal and to transmit the baseband video signal to the remote receiver over a free atmospheric path.

108. (Previously Presented) The apparatus of claim 97, wherein the remote video display comprises two separate video display devices, and the baseband video signal comprises a first video signal for a first display device alternate with a second video signal for a second display device.

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